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and the Main Line of American Liquid Rocketry

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COVER: Navaho-class engine under test at Santa Susana test facility. (Rocketdyne photo.)
BACK COVER: Atlas-D missile lifts off, its engine derived from the Navaho program.

The German Use of Air Power at Kharkov, May 1942



Joel S. A. Hayward

(Overleaf) A Soviet tank burns wildly after being struck by Stukas.

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In March 1942, Joseph Stalin rejected the sound advice of Marshal Boris Shaposhnikov, his army chief of staff, who argued that the Red Army should adopt a temporary strategic defensive posture for the spring and early summer. Instead, the Soviet leader, still claiming that constant attack was the best strategy, supported Marshal Semyon K. Timoshenko's plan to launch individual preemptive offensives near Leningrad, in the Demyansk region, in the Smolensk and Lgov-Kursk sectors, in the Kharkov area, and in the Crimea. The Crimean campaign—really only a series of attempts by armies trapped on the Kerch Peninsula to break into the Crimean mainland—ended miserably. As will be shown, the Kharkov campaign of May 1942 ended not only in outright failure, but also in a disaster of huge proportions.

The Battle of Kharkov features prominently in historical works on the eastern campaigns—and deservedly so. Operation *Fridericus* (Frederick), the skillfully-executed German counter-offensive, not only thwarted Timoshenko's plan, but grew into 1942's first large-scale battle of encirclement and annihilation. It also placed important areas of the Donets Basin in German hands, thereby giving Axis forces an excellent staging area for Operation *Blau*, the coming summer campaign. However, the role of the *Luftwaffe*—which performed superbly under difficult circumstances as it provided the army with a high level of tactical air support—has been poorly covered by historians of these events, whose works focus primarily on army operations and the purported superiority of German doctrine and tactics over those of the Soviets. Describing and explaining *Luftwaffe* operations during the Battle of Kharkov, this article attempts to correct that imbalance. Without the *Luftwaffe*'s substantial contribution to the battle, I believe, the German army would probably not have avoided encirclement at Kharkov, let alone have turned the tables on the Soviets.

In overall command of both the Southwestern and Southern Fronts, Timoshenko had 640,000 troops, 1,200 tanks, 13,000 guns and mortars, and 926 combat aircraft at his disposal.¹ His plan called for Southwestern Front to launch two convergent attacks. The main force, comprising Lt.-Gen. A. M. Gorodnyanskii's Sixth Army and Maj.-Gen. L. V. Bobkin's "Army Group," would strike from the Barvenkovo area, south of Kharkov.² A slightly weaker force, comprising Twenty-eighth Army and formations drawn from Twenty-first

and Thirty-eighth Armies, would drive out of the Volchansk area, north of Kharkov. The two pincers would strike westward and meet behind Kharkov, thereby recovering the city and trapping the bulk of *General der Panzertruppe* Friedrich Paulus' Sixth Army.

Southwestern Front's powerful force of twenty-three rifle divisions, two cavalry and two tank corps easily outnumbered the German formations they directly opposed: fourteen infantry and two tank divisions of Paulus' Sixth Army and an infantry division of *Armee-Gruppe von Kleist*.³ The rest of this *Gruppe*—actually formed from Seventeenth Army and First Panzer Army—faced the exhausted Southern Front. Because this front had not yet recovered from recent batterings, Timoshenko planned to use it during his offensive only to protect the vulnerable south face of the Izyum salient.

German forces in the Kharkov region were themselves preparing to launch an offensive, code-named *Fridericus*, in the middle of May. *Generalfeldmarschall* Fedor von Bock, commander of Army Group South, intended this offensive to eliminate the dangerous Izyum salient, destroy the Soviet forces trapped within, and establish secure positions on the left bank of the northern Donets River. These positions would serve as the staging area for the main summer campaign. The plan was relatively simple: Sixth Army would thrust into the bulge from the north, while Army Group von Kleist would do so from the south. They would meet in front of Izyum, having cut off a large part of an enemy front. However, before von Bock could implement *Fridericus*, the Soviets struck first.

At dawn on May 12, Timoshenko launched his mighty offensive. Striking with stunning speed and ferocity and greatly outnumbering their opposition, his formations smashed through Sixth Army's defenses both north and south of Kharkov, the Ukrainian capital and fourth largest Soviet industrial center.⁴ By midday, forward units had advanced to within twenty kilometers of the city, held by the Germans since its capture in late October 1941. Within a day or two at the most, Timoshenko claimed, Kharkov would again be in Soviet hands.

Paulus, whose army bore the brunt of the savage attack, immediately appealed to von Bock for reinforcements. The latter, now believing that *Fridericus* could not proceed as planned, gave him the 23rd Panzer Division, which was to have been used as one of the offensive's spearhead

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Generaloberst Löhr, commander of *Luftflotte 4*, the air fleet operating in the vast southern sector of the eastern front.

HITLER ... WAS ACTUALLY AN ARMY MAN WHO ... LACKED EXPERIENCE IN AIR TACTICS AND STRATEGY

units.⁵ This angered *Generaloberst* Franz Halder, the German army's chief of staff. During a heated telephone conversation that afternoon, Halder told von Bock that he must not waste the troops earmarked for *Fridericus* on repairing minor "blemishes." This comment stung the army group commander, appalled by his superior's ignorance of the situation at the front. "It's not a question of patching up local blemishes," he angrily replied. "It's neck or nothing!"⁶

Despite their disagreement, von Bock finally managed to convince Halder that the situation at Kharkov was extremely critical. The latter stressed this to Hitler, who responded immediately and decisively. Without consulting Hermann Göring, the *Luftwaffe's* commander-in-chief, Hitler immediately ordered the transfer to the Kharkov sector of every air unit in the southern zone not already involved in critical combat duties.

This was not the first time that Hitler had involved himself in the deployment of air forces. By inclination and experience he was actually an "army man" who, despite his superb grasp of technical details, lacked experience in air tactics and strategy.⁷ During the successful first years of the war he had rarely meddled in air force affairs, feeling content to leave most decisions to Göring, a poor commander undeserving of his trust, and

Erhard Milch, Göring's capable and dedicated deputy. Over the winter of 1941–1942, however, the *Führer* had come to appreciate the key role played by air support. In numerous places along the eastern front he had seen the *Luftwaffe* patch up frontline difficulties, sometimes even significantly affecting the outcome of battles. Clearly impressed, he began to interfere in air matters, often without consulting Göring, whose poor performance had become obvious.

In late February 1942, to illustrate this point, *Generaloberst* Georg von Küchler, commander of Army Group North, had laid plans for a counter-attack near Volkhov in the far north. On March 2, Hitler personally ordered a "thorough air preparation of several days" before the opening of the attack.⁸ The weather was so unfavorable, however, that few aircraft could take to the air. Consequently, the *Führer* expressly ordered von Küchler, who was anxious to get underway, to postpone the offensive "until weather conditions permit the full deployment of the Air Force." A month later Hitler lectured him on the importance of close air support. Back in January, he said, "Toropets would not have been lost, and with it key German fuel dumps and supply depots, if the group commander had fully understood the potential of this support."¹⁰ Perhaps with this "failure" in mind, Hitler became far more active in the deployment of air units during important operations. In April, for example, he allowed local army commanders to devise their own plans for offensives in the Crimea against strong Soviet forces—which still held Sevastopol, the Soviet Union's main naval base in the Black Sea, and the strategically important Kerch Peninsula, from which Hitler planned to launch attacks against the Caucasus—but he refused to grant local air commanders an equal degree of freedom. At least for the Kerch offensive, he wanted to organize air operations himself.¹¹

That is precisely what transpired. Wanting the best possible close air support force for Kerch, Hitler transferred *Fliegerkorps VIII* (Eighth Air Corps),¹² the *Luftwaffe's* premier close support formation, to the Crimea. He also cut short the long-overdue leave of that air corps' brilliant commander, *Generaloberst* Wolfram Freiherr von Richthofen, and sent him to the Crimea.¹³ Contrary to the previous custom of placing all air corps under the control of the air fleet in the region, Hitler did not place von Richthofen's corps under the authority of *Generaloberst* Alexander Löhr's *Luftflotte 4* (Fourth Air Fleet),¹⁴ which already possessed *General der Flieger* Kurt Pflugbeil's *Fliegerkorps IV* and *Oberst* Wolfgang von Wild's *Fliegerführer Süd* (Air Command South, a small antishipping command based in the Crimea). Instead, *Fliegerkorps VIII*, under von Richthofen's leadership at all times, would actually take charge of all air operations during the Kerch and Sevastopol offensives, answering only to Göring.¹⁵ Hitler was unconcerned that this offended the honor of *Luftflotte 4's* senior offi-



The tall and skeletal Kurt Pflugbeil (center) was an outstanding officer with a distinguished record stretching back to the First World War.

VON RICHTHOFEN ANGRILY COMPLAINED THAT THE LUFTWAFFE HAD BECOME THE ARMY'S WHORE

cers; he wanted the job done right, so he appointed the right man—and force—for the job.

As it turned out, the Soviet offensive at Kharkov struck before von Richthofen's air corps and *Generaloberst* Erich von Manstein's Eleventh Army had brought the Kerch offensive to a close. However, Hitler was sufficiently pleased with progress at Kerch—and rightly so; his army and air force had smashed seemingly-impregnable Soviet defenses and were already storming the city of Kerch itself—that he felt able to pull numerous air units away from the Crimea and send them 500 kilometers north to Kharkov. It was a matter of priorities, he insisted to his Air Staff on May 12, only hours after the Soviet onslaught began.

Hitler's decision to use the *Luftwaffe* as a "fire-fighting" force, which could be hastily concentrated at critical points to compensate for the army's lack of firepower or other deficiencies, reflects the prevailing view of the *Wehrmacht* High Command: that the primary function of the *Luftwaffe*, and particularly the air fleets in the east, was support of ground forces. Later commenting on the responsibilities and restrictions associated with this close support orientation, von Richthofen angrily complained that the *Luftwaffe* had become "the army's whore."¹⁶ It is outside the scope of this article to analyze the soundness of the German High Command's emphasis on tactical air warfare at the expense of a strong strategic bombing capability; nevertheless, during the battle under study the *Luftwaffe* performed so well that no reasons to challenge that orientation arose in the minds of senior observers. After the defeat at Stalingrad, however, numerous sound reasons emerged, prompting *Luftwaffe* strategists to rethink their role and begin creating new air power doctrines.¹⁷

Hitler's decision to send north the bulk of his combat units greatly frustrated von Richthofen, who complained in his diary: "Apparently, Kharkov is a colossal mess; the Russians broke through with tanks in two places. We must release

one fighter, one dive bomber and two bomber groups!"¹⁸ His entry for the following day reveals his feelings more clearly: "The matter at Kharkov stinks considerably. I must give up further bomber groups, two fighter groups and two dive-bomber groups. That is, practically everything! By order of the *Führer*, I report, therefore, that the successful completion of Kerch now looks questionable."¹⁹ Despite the air commander's angry statement, the transfer north of his units never jeopardized the Kerch campaign. Most Soviet formations were already in full rout. Except for a few pockets, the others collapsed within days.

News that Hitler had ordered the transfer to Kharkov of powerful air reinforcements immediately bolstered the morale of the army leadership in that critical sector. Having seen the *Luftwaffe's* decisive contribution to numerous defensive battles during the previous winter, von Bock told Paulus, his worried Sixth Army commander, "not to be in too great a hurry and not, in any circumstances, to attack without air support."²⁰

Hitler was certainly right to transfer aircraft urgently from the Crimea. When Soviet divisions first smashed through German lines near Kharkov, Löhr's *Luftflotte 4* had very few aircraft to throw against them. Most of its units—half of *Fliegerkorps IV* and all of *Fliegerkorps VIII* and *Fliegerführer Süd*—were concentrated in the Crimea. The other half of *Fliegerkorps IV* remained in the Ukraine, but according to its after-action report of June 12 it had "only weak fighter forces at its disposal, because the mass of fighters, as well as almost all its bomber and dive-bomber units, had been relinquished for the execution of the Kerch operation."²¹

Pflugbeil drove his remaining units to perform to the limit of their capabilities, ordering every airworthy plane into battle and forcing pilots to fly virtually from dawn to dusk, pausing only long enough to refuel and rearm before taking to the skies again. Many pilots flew ten missions or more before finally climbing, exhausted, from their cockpits. Of course, supply, maintenance, and airfield control personnel had to match their efforts, working tirelessly to keep their aircraft operational and their turnaround times low.

Pflugbeil's fighters attacked Soviet forces with their machineguns, cannons, and small bombs from the opening moments of the offensive,²² but were unable to do more than occasionally disrupt supply columns and pin down infantry formations. Yet they did manage quickly to wrestle air superiority over the battlefield from their VVS (*Voyenno-Vozdushnyye Sky*, Soviet Air Force) counterparts, who were numerically stronger but poorly trained and deployed.²³ This permitted German ground forces to function with acceptable losses to the relatively few Soviet ground-attack aircraft and fighters that still managed to reach the battlefield and unleash their deadly projectiles. These were mainly the heavily-armored Ilyushin Il-2 *Shturmoviks*. These excellent planes proved impervious to small-arms fire, and sometimes

An 88mm flak gun guards a German airfield in Russia.



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even fared well when tested by the high-velocity fire of the light and medium German flak batteries trying to bring them down. Although the Soviet fighters included a number of the effective new models, such as the Yakovlev Yak-7B and the Lavochkin La-5, the vast bulk were still antiquated and inferior types posing no real threat to the *Luftwaffe's* latest machines. For example, the Polikarpov I-153 *Chaika* (Gull), the I-15 *Chato* (Snub-nose), and the truncated I-16 *Rata* (Rat) all dated from the Spanish Civil War period. The first two, both biplanes, were no match for their markedly superior German counterparts, and even the latter, a monoplane of better design, usually came off worst in aerial combat. Had Pflugbeil's fighters not been able to keep away most of the Shturmoviks and other Soviet aircraft, the German army might have suffered critical losses and lost the ability to regroup effectively. Even so, without bombers, dive-bombers and ground-attack aircraft, those same fighters proved powerless to blunt the devastating Soviet ground attack.

By the evening of May 14, Timoshenko had opened broad gaps both north and south of Kharkov and had created the right conditions for introducing the bulk of his armor and mobile formations. During the previous two days he had deployed his armored formations, for the first time in the war, according to Heinz Guderian's maxim: "not in dribbles, but in mass!"²⁴ His use of tanks in the German manner had doubtless contributed to his recent successes. Even so, the Soviet marshal had not yet deployed more than 20 percent of his available armor. He had been holding back his powerful Twenty-first Tank Corps in order to use it, when he saw the right moment, to maximum effect. Now, after two days of unchecked progress, Timoshenko had the opportunity to throw the Corps effectively into the battle in order to complete the encirclement

of German forces around Kharkov. However, he failed to seize the moment. According to the official postwar Soviet history, he was misled by false intelligence reports stating that von Bock was concentrating a large Panzer force near Zmiev, twenty-five kilometers south of Kharkov, and, as a result, he delayed introducing his mobile formations. Timoshenko's failure to deploy his armor on May 14 or 15, the official history continues, "negatively affected the development of the operation. The advancing troops exhausted their strength and the pace of the advance dropped sharply. By this time the enemy had succeeded in pulling up reserves and in organizing the rear area defenses."²⁵

Not only had von Bock regrouped his ground forces by May 15, but by then most of the air units diverted from the Crimea had arrived. These included three Stuka groups of the 77th Dive-Bomber Wing, which had distinguished itself in almost every major operation since the war started. One group arrived at Kharkov on May 13, the others two days later.²⁶ They were joined by two Heinkel 111 groups of the 27th Bomber Wing, which also reached Kharkov on May 13, three Junkers 88 groups of the 51st "Edelweiss" Bomber Wing, which came between May 13 and 15, and three Heinkel 111 groups of the 55th Bomber Wing, which came on May 14. The last unit to make its way north, a Junkers 88 group of the 76th Bomber Wing, arrived late on May 15. Pflugbeil borrowed units not only from von Richthofen in the Crimea, but also from *General der Flieger* Robert Ritter von Greim, whose recently-formed *Luftwaffenkommando Ost* (Air Force Command East) operated in the central army zone before Moscow. Von Greim sent Pflugbeil a Stuka group, which flew south on May 14, and a bomber group, which made the journey five days later. Acting on their own initiative,

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both von Richthofen and von Greim also sent him as much aviation fuel as they could spare, as well as transport aircraft and numerous trucks to carry it, and even teams of their own ground personnel to help unload the fuel and supplies, and to assist in any other ways they could.

These transfers exhausted the aircrews, who had received no rest from constant combat in their own sectors before making the long and arduous flights to the Kharkov region. They also further taxed the energy and resources of Pflugbeil's service and maintenance personnel, who worked ceaselessly in chaotic conditions and a hostile environment to organize and equip airfields and prepare arriving aircraft for their new missions. The creation of several new airfields—needed to cope with the overflow of units arriving from elsewhere—created hardships for the *Luftwaffe's* labor battalions. Their housing was primitive, consisting of vulnerable "tent cities"—to quote a phrase found throughout von Richthofen's diary—and their sanitation facilities were rudimentary. Many hastily-formed airfields—really only large stretches of flat grass—even lacked running water. Because several of the airstrips were not near German railheads and established supply routes, and some lacked decent roads, *Luftwaffe* construction, supply, and maintenance personnel had to move their equipment forward by air. Supply units struggled to carry out these missions, pushing themselves and the Junkers Ju 52 work-horses to the limits of their endurance to satisfy Pflugbeil's constant demands for the highest possible operational level.

Despite these great difficulties, the transfer of air units, fuel, and equipment from the Crimea and from the Moscow sector gave beleaguered German ground forces at Kharkov what historians Earl F. Ziemke and Magna E. Bauer later called "an extraordinarily powerful concentration

of air support."²⁷ Including these additions, *Fliegerkorps IV* now commanded no fewer than ten bomber, six fighter, and four Stuka groups, as well as a close support group and a tactical reconnaissance squadron.²⁸ This gave Pflugbeil far more units than von Richthofen later deployed during his famous assault on Sevastopol, considered by many to be the *Luftwaffe's* most impressive example of tactical air support. However, because of differences in operational readiness—54.5 percent of Pflugbeil's aircraft were combat-ready on May 20, whereas 64.5 percent of von Richthofen's were on June 20²⁹—the sizes of these huge strike forces were almost identical.

Pflugbeil's strongly-reinforced *Fliegerkorps IV* immediately made its presence felt. Although the Soviets continued advancing south of Kharkov, taking Krasnograd and Taranovka on May 15, German forces managed to slow their progress and contain their advance north of the city. Pflugbeil's air corps contributed substantially to these achievements. Operating from airfields dangerously close to the front, it provided German ground forces with effective support by launching unrelenting and devastating attacks on Soviet troops, vehicles, and armor and pounding mobilization points and logistics systems in army rear areas. It attacked the Soviets not only with aircraft, but also with its 88-mm flak guns. Used as direct-fire anti-tank guns, these high-velocity weapons destroyed scores of Timoshenko's T-34s as they rolled westward. The corps' outstanding work was recognized by all observers. Even Halder—who rarely paid attention to air activities—wrote in his diary on May 15 that "the force of the attack appears to have been broken by the efforts of our *Luftwaffe*."³⁰

The *Luftwaffe's* solid performance was not achieved without cost to German ground forces, however. As in most previous campaigns on the

A *Luftwaffe* labor battalion constructing a runway in Russia.



eastern front, several "friendly fire" incidents occurred. German army units had been instructed to mark their positions clearly in order to prevent these types of incidents. They were supposed to lay out white identification panels and, if necessary, to use flares and smoke pots. At this stage in the war, ground troops could not yet establish direct radio contact with aircraft overhead. Interservice communication depended largely on the working relationship of air and ground commanders and Pflugbeil certainly worked hard to foster good relations and clear communications with his army counterparts and on the effectiveness of *Fliegerverbindungs-offizier* (air liaison officers, or *Flivos*), specially-trained air force officers attached to forward ground units. In constant radio communication with their air corps, *Flivos* appraised the corps of the situation and the intentions of the ground units, advised army commanders on the most practical use of air power and passed on their requests for air assistance. This system worked well when *Luftwaffe* units were attacking clearly-defined enemy positions during static or slow-moving operations, but not satisfactorily during operations like this one at Kharkov, where the situation on the ground was always chaotic and far more fluid and opposing forces were frequently hard to distinguish. Still, these unfortunate "friendly fire" incidents pale considerably when compared to the very effective combat results that the *Luftwaffe* actually achieved.

Von Bock was greatly relieved that the Soviet attack was losing speed and strength, but also felt unsure of what to do next. Although *Fridericus* was due to start in a few days, powerful enemy forces still pinned down and threatened to destroy the bulk of Paulus' Sixth Army, his northern pincer. By May 14, it had already lost sixteen battalions.³¹ With one pincer missing, the field marshal realized that *Fridericus* could no longer be carried out as originally planned. Should he cancel the offensive, therefore, and merely carry out a local counterattack in order to stabilize the front, or should he attempt to conduct the offensive with only one pincer? He preferred the former option; Hitler, who promised to send even more aircraft from other combat zones, ordered the latter.³² Early on May 17, *Armee-Gruppe von Kleist* would strike at the weak and unsuspecting Soviet Ninth Army, which was supposedly defending the southern shoulder of the Izyum salient. The *Gruppe* would also drive from Barvenkovo to Balakleya, thereby pinching off the entire salient and trapping Timoshenko's forces.³³

With five Rumanian divisions protecting their left flank, von Kleist's strike force of eight infantry divisions, two Panzer divisions, and a motorized infantry division attacked as planned on May 17.³⁴ They received strong support from several fighter groups, some flying the latest Messerschmitt Bf 109Gs, which swept the skies of their Soviet counterparts and strafed exposed troops and supply and reinforcement convoys.

Because these convoys possessed few anti-aircraft guns and had to travel unprotected more than 100 kilometers from their railheads to their forward units, they were little more than sitting ducks.

Hundreds of Pflugbeil's bombers and Stukas joined the battle, unloading streams of bombs on tank and supply columns, troops, field fortifications, strong points, bunkers, and logistics networks. They flew so many sorties and dropped so many bombs in this period that they virtually exhausted the considerable stocks of bombs, fuel, spare parts, and other equipment that Löhner had been stockpiling for Operation *Blau*. Pflugbeil pleaded with von Richthofen and von Greim to send him whatever they could spare. Hard-pressed themselves, they nonetheless sent him a small but steady stream of bombs, parts, and equipment. His appeals to the *Luftwaffe* High Command met with less success. The *OKL* (*Oberkommando der Luftwaffe*) had virtually nothing to give him, and no means of getting it to him anyway, and informed him bluntly on several occasions that he should keep obtaining what he needed from other commands in the region.

Pflugbeil's units also scattered loads of propaganda leaflets over enemy positions, calling on Soviet troops to throw down their arms in order to save themselves from inevitable destruction. In fact, during May they rained down more than 8 million leaflets (two-thirds released by *K.G. 55* alone).³⁵ The huge quantity scattered actually raises an important question. Why would an air force operating under the worst of circumstances and with all sorts of shortages—especially of fuel—waste valuable time and effort on these propaganda missions? Leaflets were relatively cheap to produce but, because of their bulk, took up much space on trucks, trains, and transport planes. They also occupied a lot of space in aircraft bomb bays, greatly reducing the amount of bombs that could be carried simultaneously, and caused the consumption of fuel needed for far more important combat missions. The answer appears to be that the *Wehrmacht* leadership actually believed these missions resulted in increased desertion rates and lower enemy morale.³⁶ No evidence has come to light demonstrating either that they had solid grounds for believing this, or that leaflet drops proved at all effective in significantly lowering enemy morale. Even without the benefit of hindsight, Pflugbeil's decision to continue the missions during these critical days is astounding.

Having said that, his bombers also undertook support missions of a more significant nature: they devoted much time and effort to airdrop work, dropping 383 canisters of ammunition and rations to encircled or especially hard-pressed German troops. *K.G. 55* conducted the bulk of these missions, dropping supplies on several occasions, for example, to German pockets of resistance in the small Ternovaya forest and repeatedly bombing enemy forces attempting to eradicate them.³⁷ This often involved flying at

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A Henschel 126 of the type used in Russia as the backbone of the tactical reconnaissance fleet.



low altitude and resulted in several losses to ground fire.

Pflugbeil's tactical reconnaissance aircraft—Henschel Hs 126s and the excellent Focke-Wulf FW 189s—also played their part, monitoring enemy movements, directing attack aircraft to their targets, and checking and correcting the army's artillery fire. Von Kleist actually considered the role of these observation planes—a topic still ignored by most historians—to be so important to his operation that he later singled them out for special praise. "The underlying reason for the Command's actions," he wrote in a letter of thanks to *Fliegerkorps IV*, "was the provision of tactical reconnaissance fliers. Their tireless missions, which demonstrated their outstanding personal bravery, gave the Command a clear picture of the enemy at all times."³⁸

Many aircrew still flew more than ten missions per day in this critical period, leaving them and their ground teams exhausted. Their efforts, however, brought great rewards; they shot down numerous enemy aircraft, knocked out scores of tanks and motor vehicles, killed hundreds of horses, destroyed countless artillery pieces, and even wrecked several trains. After the war, Generalmajor Hans Doerr, Fifty-second Army Corps' Chief of Staff, recalled *Fliegerkorps IV*'s outstanding work in the first days of von Kleist's offensive:

A decisive share of the success achieved during the first stages of the offensive was contributed by Fliegerkorps IV, whose units supported the infantry's struggle in such an exemplary manner that, for example, the strongly-defended heights south of Bogorodichnoye [on the Donets River, southeast of Izyum] came under annihilating air attacks only 20 minutes after requests arrived from infantry regiments.³⁹

According to First Panzer Army's war diary, the new offensive was supported "most actively

by the *Luftwaffe*."⁴⁰ Strong air attacks in front of their advances helped the Third Panzer Corps push forward twenty-four kilometers to Barvenkovo and Seventeenth Army twenty-eight kilometers, nearly to Izyum, on the first day alone. *Fliegerkorps IV* also assisted Paulus' army in the region southwest of Kharkov, where fighting intensified on May 17. Strong Soviet armored forces attempted to break through to Merefa, but were stopped in their tracks by a powerful combination of anti-tank guns and Stukas. Their attacks left burned-out tanks strewn across the battlefield. "The divisions of the Eighth Army Corps," Hans Doerr wrote, "effectively supported by *IV. Fliegerkorps*, prevented the breakthrough and, with that, the envelopment of Kharkov."⁴¹

Taken by surprise, General Kharitonov's Ninth Army collapsed under the weight of von Kleist's and Pflugbeil's attack. Its left wing began a fighting retreat towards the northern Donets, while its right wing fell back towards Barvenkovo and further to the southwest. This retreat, and the rapid German advance along the northern Donets, placed Soviet forces in great danger of being cut off. Realizing this, and that Timoshenko's northern pincer had been stopped and his southern now swung into empty air, Marshal Alexander M. Vasilevskii, the Red Army's acting chief of the General Staff, urgently asked Stalin twice on May 18 to cancel the offensive and redeploy all forces in defensive operations.⁴² Stalin refused, pointing out that Timoshenko himself still believed the offensive should continue. Late on May 19, however, he finally permitted Southwestern Front to switch to the defensive after Timoshenko, apparently realizing his enormous error, now insisted that a disaster appeared imminent. This decision came far too late.

On May 20, von Kleist's spearheads took Protopopovka, which reduced the mouth of the pocket to only twenty kilometers. "Continuation of this advance," concerned American intelligence

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officers noted in their brief to the Combined Chiefs of Staff, "would threaten encirclement of all Russian forces west of the Donets." The battle, they added, "has assumed large proportions and much depends on its outcome."⁴³ No one realized this more than the encircled Soviets themselves. "Like fiery wasps trapped in a bottle," John Erickson wrote, "the trapped armies turned inwards and stabbed at the German pincers."⁴⁴ It did no good; after three more days of bitter fighting, German troops succeeded in closing the mouth of the pocket.⁴⁵

Fliegerkorps IV worked vigorously in that period to ensure that few Soviet troops escaped. To strengthen his already-powerful bomber fleet for these operations, Pflugbeil briefly borrowed an extra bomber group from *Luftwaffenkommando Ost*.⁴⁶ His bombers struck Soviet forces still fighting inside the rapidly-closing ring as well as those trying to smash the ring open from the outside. They destroyed large numbers of men, horses, tanks, armored vehicles, trucks, and guns. In order to prevent enemy formations fleeing through the narrowing gap, they also struck the main bridges across the Donets.⁴⁷ They were poorly suited to this work, and succeeded only in destroying one bridge and damaging five others. Stukas raced in to do the job properly, destroying seven bridges and damaging four more and a landing stage.⁴⁸

Fighters, with complete air superiority and no major concerns about enemy flak—because most flak guns had been destroyed or left on the battlefield by retreating troops—attacked unprotected formations and soft-skinned vehicles both inside and outside the pocket. As a result, few enemy troops made it through the gap and those that did suffered fearful losses, running headlong into a hailstorm of anti-personnel and high-explosive bombs. These included the deadly and effective SD2 fragmentation bombs, designed during the previous year specifically for use in the east. These small 2-kg bombs—christened "Devil's eggs" by aircrew—fragmented into between 50 and 250 pieces of shrapnel, which sprayed out in a five-meter radius. Pflugbeil's air units dropped large quantities, which detonated on impact or just above the ground with devastating effects on the fleeing Soviets.

When the ring closed completely, Soviet troops fought like cornered cats. With extraordinary determination and ferocity, they launched themselves against the walls of the ever-tightening ring. Low on food, ammunition, and fuel, but driven by the combination of courage and fanaticism that Germans had come to expect, they made desperate and hopeless attacks. On many occasions, they stormed forward with arms linked, shouting "Urray!" German machine-gunners hardly needed to aim; they just sprayed the lines with bullets, killing hundreds at a time. Only one breakout attempt came close to success. On May 25, two divisions, supported by a number of T-34s, managed to bulldoze their way towards

Petrovskoye before they were caught by Pflugbeil's Stukas. "In heavy individual actions," Hans Doerr recalled, describing these events, "*Fliegerkorps IV*'s superb work caused the annihilation of the forces attempting to break out near Petrovskoye."⁴⁹

By May 28, Soviet resistance finally petered out. The Battle of Kharkov—in which the Soviets tried to encircle the Germans but were themselves surrounded—was over. For Stalin, it was an appalling defeat. Some 75,000 of his best troops had been killed and another 239,000 staggered into captivity. Over 1,200 tanks, 2,000 artillery pieces, and 542 aircraft were destroyed or captured. Thousands of horses—vital for transport and towage—also fell into German hands, as did large stockpiles of ammunition and other equipment.⁵⁰ For Hitler, it was a grand victory. He had humiliated Stalin only a week earlier, when his forces crushed three armies, captured Kerch, and took 170,000 prisoners. Now, by smashing another three armies, throwing back a major offensive, and bringing the prisoner total for both campaigns to more than 400,000, he inflicted further humiliation. Referring to his coming campaign for the Caucasus, he triumphantly exclaimed to Goebbels that he was now ready "to strangle the Soviet system at its Adam's apple."⁵¹

It was a classic battle of encirclement and annihilation and, as Hitler fully realized, one of strategic importance. At a bearable cost, his troops had hacked off the Izyum salient, which had been a constant threat to Kharkov and an extra length of front for them to guard. By gaining important areas in the Donets Basin, they had created an excellent staging area for Operation *Blau*, the planned summer campaign. They had also significantly weakened opposition in the region and regained the strategic advantage. If they could get *Blau* rolling in the near future, they should make splendid progress.

Pflugbeil's *Fliegerkorps IV* had certainly contributed to the German victory. In less than three weeks of furious fighting, it had flown 15,648 sorties and dropped 7,700 tons of bombs, 8,359,300 leaflets and 383 canisters of supplies.⁵² The Ju 52s of its transport squadrons worked hard to keep airfields and army units supplied, flying in 1,545 tons of materials. For the loss of only 49 aircraft, and 12 men killed and 98 missing, the air corps' reported kill total was astounding. If its claims can be trusted, and Soviet sources do admit very heavy losses to the *Luftwaffe*, the corps destroyed no fewer than 615 aircraft, 19 of them on the ground. It claimed an impressive 227 tanks destroyed and 140 others damaged. Horizontal bombers, flying at low altitude over armored columns caught in the open without flak protection, were far less accurate than Stukas. Yet evidence from daily after-action reports shows that, because of their greater number and high mission rates, they actually destroyed as many tanks as the Stukas.

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All units—bombers, dive-bombers, and fighters—performed well against supply convoys. According to their reports, they together wrecked 3,038 motor vehicles and 1,686 horse-drawn wagons and damaged another 462 and 272 respectively. Railway convoys fared no better. Pflugbeil's airmen knocked out 22 locomotives and 6 complete trains, and damaged another 22 trains. They demolished 24 artillery and 2 flak batteries, 49 separate artillery pieces, 14 munitions camps, 10 supply camps and various other installations, and partially destroyed many more of each. They also killed large numbers of men and horses.

Luftwaffe flak units also distinguished themselves during the Battle of Kharkov. The *I. Flak-Korps* (First Antiaircraft Corps) claimed that between May 12 and 28 it shot down 33 enemy aircraft and wrecked 124 tanks, including T-34s and the huge KV-1s and KV-2s.⁵³ Again, Soviet sources attest to the general reliability of these figures. Although most batteries performed well, some proved remarkably effective. For instance, one battery, commanded by a *Leutnant* Reichwald, managed to shoot down 6 aircraft within the space of a few minutes on May 18, bringing its total for the eastern campaign to 27. Reichwald's achievements did not pass unnoticed; in August he received the Knight's Cross.

Pflugbeil's air corps played a crucial role in the battle, as army commanders gratefully acknowledged. "Our special thanks go to the air corps and its close-combat aircraft," von Kleist wrote to Pflugbeil, "which, in tireless operations, contributed decisively to our victory." Paulus also sent his thanks:

From the onset of the battle, fighters controlled the airspace and shot down numerous enemy aircraft. Assisting the struggle on the ground, dive-bombers and bombers attacked with bombs and other weapons, smashing enemy assembly points, attacking tanks, batteries and columns. The IV.

*Fliegerkorps thereby made an essential contribution to the successful defense, encirclement and destruction of the enemy. I proclaim to the corps and the elements it controlled my special gratitude for its frictionless cooperation and never-failing support.*⁵⁵

Löhr, head of *Luftflotte 4* and Pflugbeil's immediate superior, proudly passed on to the air corps a message from the delighted von Bock, whose armies had turned looming defeat into stunning victory.⁵⁶ Von Bock, the air fleet commander said, "proclaims his special gratitude to *Luftflotte 4* for its decisive support of the army group." To this Löhr added his own expression of thanks for the corps' "outstanding performance and its again-demonstrated operational capabilities."⁵⁷

In retrospect, the *Luftwaffe* played a key part in smashing the major Soviet offensive around Kharkov. *Fliegerkorps IV* and elements of *Fliegerkorps VIII* distinguished themselves in a series of non-stop defensive missions, then greatly aided the army as it threw back and destroyed the Soviet forces. Under Kurt Pflugbeil's determined and capable command, they overcame or minimized the impact of difficulties created by their rapid transfer to the region and performed well in all operations, including tactical reconnaissance, air-drop and supply, direct battlefield support, and interdiction missions. No less importantly, they also cleared the skies of the VVS, thus protecting the army's logistics networks, march routes, command posts, and field installations from attacks by Soviet bombers and allowing army formations to carry out combat operations without suffering significant losses to *Shturmoviks* and Soviet fighters. Pflugbeil's air corps, therefore, certainly earned the praise it received from von Bock and senior army officers, but not the lack of coverage it has subsequently received from historians of these events. Its performance was excellent, its contribution to the battle decisive. ■

NOTES

1. John Erickson, *The Road to Stalingrad: Stalin's War with Germany, Volume I* (London: Weidenfeld, 1993. First published in 1975), p. 344.
2. *History of the Great Patriotic War of the Soviet Union, 1941-1945*. Translated from Russian by the U.S. Center for Military History (Wilmington, Del.: Scholarly Resources, 1984), Vol. II, pp. 411, 412.
3. *Ibid.*, p. 412.
4. *Kriegstagebuch des Oberkommandos der Wehrmacht (Wehrmachtführungsstab) 1940-1945*, P. E. Schramm, gen. ed., (Frankfurt am Main: Bernard & Graefe, 1961) (hereafter cited as *KTB OKW*), Vol. II, p. 352 (entry for May 12, 1942).
5. *Paulus and Stalingrad: A Life of Field-Marshal Friedrich Paulus with Notes, Correspondence and Documents from his Papers* by Walter Goerlitz (London: Methuen, 1963), p. 177.

6. *Ibid.*
7. R. Overy, "Hitler and Air Strategy," *The Journal of Contemporary History*, Vol. 15 (1980), pp. 405-21.
8. Franz Halder, *Kriegstagebuch: Tägliche Aufzeichnungen des Chefs des Generalstabes des Heeres, 1939-1942*, H.-A. Jacobsen, ed. (Stuttgart: W. Kohlhammer, 1965), Vol. III, p. 408.
9. *Ibid.*, p. 412.
10. *KTB OKW*, Vol. II, p. 321 (entry for April 13, 1942).
11. *OKL, Chef Genst. 7644/42 Chefsache—Notiz über die Besprechung beim Führer am 17.4.1942 bezüglich Einsatz der Luftflotte 4*, National Archives (Washington, D.C.) T971/18/975-981.
12. The largest operational commands within air fleets were the *Fliegerkorps* (air corps). These commands normally functioned under the authority of the air fleet in the region. On numerous occasions through-

out the war, however, the *Luftwaffe* High Command directed certain *Fliegerkorps* to operate independently and under the direction of their own commanders, who were usually of *Generalleutnant* (designated Maj. Gen. in USAAF) or *General der Flieger* (Lt. Gen.) rank. Air fleets seldom controlled more than one *Fliegerkorps* at a time, although in critical theaters or during major offensives a fleet might assume control of two and sometimes even elements of a third. *Fliegerkorps* differed markedly in size and composition, depending on the importance of theaters and the nature of operations each air corps was called upon to perform, but "typical" corps during the first two years of war in the east possessed between 350 and 600 aircraft of different types.

13. Dr. Wolfram Frhr. von Richthofen, *Generalfeldmarschall. Persönliches Kriegstagebuch*, May 12, 1942, Bundesarchiv-Militärarchiv (Federal Military Archives), Freiburg, Germany (hereafter cited as BA/MA) N671/9.

14. By the end of the war in Europe, in May 1945, the *Luftwaffe* had organized all its operational aircraft into seven *Luftflotten* (air fleets), three more than it had when hostilities broke out six years earlier. They were designated *Luftflotten* 1, 2, 3, 4 (the original four), 5, 6, 7 and *Reich* (created during the war, the latter being responsible for home air defense). Each *Luftflotte* was similar to an individual "Air Force" within the USAAF; that is, it was a self-contained air command, comprising all types of combat units (bomber, dive-bomber, ground-attack, fighter and reconnaissance) as well as transport, flak and signals units. Senior operational commanders—usually of *Generaloberst* (four star general) or *Generalfeldmarschall* (five star general) rank—headed the command staff of each air fleet, exercising full authority over subordinate *Fliegerkorps*.

15. VIII. *Fliegerkorps im Einsatz Sewastopol 1942 (Juni)* (aus der Studie der 8. Abt., "Erfahrungen aus dem Einsatz der Luftwaffe gegen Festungen"), USAF Historical Research Agency, Maxwell AFB, Alabama (hereafter cited as AFHRA) K113.3017 Vol. 1.

16. HQ, US Strategic Air Forces in Europe (Rear), Office of the Historian, AAF Sta 390, APO 413, US Army, "Questionnaire on GAF Doctrine and Policy: Answers by Gen. Maj. von Rohden (P.W.) and Col. Kriesche (P.W.) to Questions Submitted by Major Engelman," AFHRA 519.619-7 (August 14, 1945).

17. R. Muller's *The German Air War in Russia* (Baltimore, Md: Nautical and Aviation Publishing Co., 1992) provides the best treatment of the *Luftwaffe*'s changing doctrines during wartime.

18. *Richthofen Tagebuch*, May 12, 1942, BA/MA N671/9.

19. *Ibid.*, May 13, 1942.

20. *Paulus and Stalingrad*, p. 177.

21. *Generalkommando des IV. Fliegerkorps Abt. Ia: Übersicht über Einsätze, Erfolge und Verluste der Verbände des IV. Fliegerkorps v. I.-31.5.42*, p. 1. Note: this document is undated, but was entered into St. Gr. 77's war diary on June 12, 1942, BA/MA RL 10/473a.

22. See Paulus' teletype message of thanks to *Fliegerkorps IV* in *Kommandierende General IV. Fliegerkorps*, 3. Juni 1942, gez. Pflugbeil; BA/MA RL 10/473a; R. A. Kilmarx, *A History of Soviet Air Power* (New York: Praeger, 1962), p. 185.

23. See note above.

24. Halder, Vol. III, pp. 439, 440 (May 12, 13, and 14, 1942).

25. *History of the Great Patriotic War*, Vol. II, p. 413.

26. During the Battle of Kharkov, *Fliegerkorps IV* commanded: I. and III./K.G. 51; I., II. and III./K.G. 55; I./K.G. 76; II./K.G. 3; I., II. and III./St.G. 77; II. St.G. 1; I., II. and III./J.G. 3; I., II., III. and 15./J.G. 52; I. and III./J.G. 77; I./J.G. 53; I. and II./Schl.G. 1; 3.(F.) 121. Source cited in note 21, pp. 4-9.

27. Earl F. Ziemke and Magna E. Bauer, *Moscow to Stalingrad: Decision in the East* (Washington, D.C.: US Army Center of Military History, 1987), p. 275.

28. Source cited in note 21, pp. 4-9.

29. *Übersicht über die fliegenden Verbände an der Ostfront am 20.5.42*, and *Einsatzfliegende Verbände der deutschen Luftwaffe an der Ostfront, 20.6.1942*, AFHRA K113.309-3 Vol. 6.

30. Halder, Vol. III, p. 442.

31. *Paulus and Stalingrad*, p. 180.

32. *Ibid.*, p. 179.

33. Hans Doerr, "Der Ausgang der Schlacht um Charkow im Frühjahr 1942," *Wehr-Wissenschaftliche Rundschau* 4, 1 (Jan. 1954), pp. 9-18 (esp. 15).

34. *History of the Great Patriotic War*, Vol. II, p. 413.

35. Source cited in note 21, p. 2.

36. Compare H. Plocher, *The German Air Force versus Russia, 1941*, USAF Historical Studies, No. 153 (USAF Historical Division, Research Studies Institute, Air University, 1965), p. 99.

37. Source cited in note 21, p. 2; F. Kurowski, *Balkenkreuz und Roter Stern: der Luftkrieg über Russland, 1941-1944* (Friedberg: Podzun-Pallas, 1984), p. 277; W. Dierich, *Kampfgeschwader "Edelweiss": The History of a German Bomber Unit, 1935-1945* (London: Ian Allan, 1975), p. 70. K.G. 27 carried out the remainder of these missions.

38. *Generalkommando des IV. Fliegerkorps, Adj. IIa., Gefechtsstand, 1. Juni 1942*, gez. von Kleist, BA/MA RL 10/473a.

39. Doerr, p. 15.

40. Ziemke and Bauer, p. 278.

41. Doerr, p. 15.

42. Ziemke and Bauer, pp. 278-280; G. Zhukov, *From Moscow to Berlin: Marshal Zhukov's Greatest Battles*, War and Warriors Series (Costa Mesa: Noontide Press, 1991), pp. 120, 121; Erickson, p. 346.

43. Combined Chiefs of Staff, Eastern Front Situation Report (message from War Office D.D.M.I. to British Army Staff, Washington. Classified "Most Secret"), No: 90657, May 24, 1942, AFHRA 119.606-2.

44. Erickson, p. 347.

45. Halder, Vol. III, pp. 445, 446 (May 21 and 22, 1942).

46. Source cited in note 21, p. 6; *Übersicht über die fliegenden Verbände an der Ostfront am 20.5.42*, AFHRA K113.309-3 Vol. 6.

47. *Air Ministry Weekly Intelligence Summary No. 143, Up to 1200-27th May 1942*, AFHRA 512.607.

48. Source cited in note 21, pp. 4-9.

49. Doerr, p. 17.

50. *KTB OKW*, Vol. II, p. 390, May 29, 1942; *Luftflottenkommando 4, Führungsabteilung Ia op., Gefechtsstand, den 29. Mai 1942, Tagesbefehl*, gez. Löhr, BA/MA RL 10/473a; Ziemke and Bauer, p. 282.

51. R. G. Reuth, ed., *Joseph Goebbels-Tagebücher, Band 4: 1940-1942* (München/Zürich: Serie Piper, 1992), p. 1801 (May 30, 1942).

52. Source cited in note 21, pp. 1, 2.

53. *Auszug aus Zusammenstellung der für Wehrmachtbericht, Rundfunk und Presse gemeldeten besonderen Leistungen: Gemeldet für Wehrmachtbericht 20.5.42; and Gemeldet für Wehrmachtbericht, Rundfunk und Presse 29.5.42*, AFHRA K113.309-3 Vol. 7.

54. *Generalkommando des IV. Fliegerkorps, Adj. IIa., Gefechtsstand, 1. Juni 1942*, gez. von Kleist, BA/MA RL 10/473a.

55. First source cited in note 22.

56. *Luftflottenkommando 4, Führungsabteilung Ia op., Gefechtsstand, den 29. Mai 1942, Tagesbefehl*, gez. Löhr, BA/MA RL 10/473a.

57. *Ibid.*